VDB1610规格书 /VDB1610 Datasheet

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V1.01	最初版本/Initial release	Sherman	20200331
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目录/**Contents**

1. 产品介绍/Product introduction

　　VDB1610 蓝牙防自拆定位手表，主控芯片采用 NRF52832 实现低功耗的待机及广播信息发送，定位方案可采用我司 VG05 信标扫描加转发手表广播信息及其 RSSI，然后用 TD05A 网关配合收集手表信息并上报后台服务器解析 RSSI 实现定位。可以实现 3~5m 精度的室内定位或存在性检测，推荐用于敬老院、工地、工厂、矿道、医院、监狱、疫情隔离等安全监护场合的人员定位。

VDB1610 Bluetooth anti-self-disassembly positioning watch, the main control chip uses NRF52832 to realize low-power standby and broadcast information transmission. The positioning scheme can use our VG05 beacon to scan and forward the broadcast information of the watch and its RSSI, and then use TD05A gateway to collect the watch information and report it to the background server to parse THE RSSI to achieve positioning. It can achieve indoor positioning or existence detection with a precision of 3-5m. It is recommended for personnel positioning in nursing homes, construction sites, factories, mines, hospitals, prisons, epidemic isolation and other security monitoring occasions.

　　手表带有 SOS 按键求救功能，可及时通知后台监护人员；表内配置心率传感器，周期性回传被监护人员的心率数据，方便后台设置心率报警范围，监测人员健康状况。

Watch with SOS button for help function, can timely inform the background monitoring personnel; The heart rate sensor is equipped in the table to periodically send back the heart rate data of the monitored personnel, which is convenient for setting the heart rate alarm range in the background and monitoring the health status of the personnel.

　　表带使用 TPU 加厚材质牢固耐用，自带防自拆检测，表带被剪断或者拆卸时将发送信息到后台。

Watchband using TPU thickening material is strong and durable, with self-disassembly detection, watchband is cut or disassembly will send information to the background.

　　手表分带屏和不带屏两种子型号。带屏手表内置一块"0.96"显示屏，可以接收并显示后台通知数据，另外可对手表不同功能的工作状态进行显示（如时间、心率、计步）；不带屏手表只有一个绿色的 LED 工作指示灯，低电量时快闪提示充电。

The watch comes in two models, with or without a screen. A "0.96"display screen is built into the watch, which can receive and display background notification data. In addition, it can display the working status of different functions of the watch (such as time, heart rate, step counting). The watch without a screen only has a green LED working indicator light that flashes quickly to prompt charging when the battery is low.

手表内置振动传感器，可在触发报警或下发消息时提醒佩戴者；另外内置加速度传感器，智能切换人员运动和静止时的蓝牙广播频率，实现最低功耗的待机，也可以用于计步（已实现）、摔倒检测（需定制开发）等功能。

The watch has a built-in vibration sensor that can remind the wearer when triggering an alarm or sending a message; In addition, the built-in acceleration sensor can intelligently switch between the bluetooth broadcast frequency when the person is moving and at rest to achieve standby with the lowest power consumption. It can also be used for step counting (realized), fall detection (customized development) and other functions.

手表使用磁吸式充电接口，使用 USB 转磁吸线接到 USB 电源上即可正常充电；手表内置 750mAh 大容量可充电锂电池，可实现 3 个月以上的超长待机。

Watch the use of magnetic charging interface, the use of USB to magnetic cable connected to the USB power supply can be charged normally; The watch has a 750mAh rechargeable lithium battery built-in, which can achieve an extra long standby of more than 3 months.

图 1 VDB1610 产品图片/Product picture

2. 硬件参数/Hardware parameters

表 2-1 产品参数/Table 2-1 Product specifications

基本工作参数/Basic parameter	
运动广播频率/Motion broadcast frequency	10Hz
静止广播频率/Still broadcast frequency	1Hz
功耗/Power Consumption	待机 50uA 定位发射 9mA@0dBm/ Standby 50uA positioning launch 9mA@0dBm
精度/Precision	3~5m
一次充电使用时间/ General using time when fully charged	3 个月（静止定位）/ 3 months (static positioning)
定位距离/Positioning distance	20M
电池容量/Battery capacity	750mAh
工作温度/operating temperature	-20~60℃
显示屏参数/Display screen parameters	
像素/Pixel	96x96
尺寸/Dimension	0.96inch
正常亮度/Normal brightness	单色白色，正常 300cd/m², 待机 50cd/m² /Monochrome white, normal 300CD /m², standby 50CD /m²
加速度传感器参数/Acceleration sensor parameter	
3 轴测量范围/3 axis measuring range	±2g/±4g/±8g/±16g
心率传感器（支持红外感应）Heart rate sensor (support infrared sensing)	
采样率/Sampling rate	10~1000SPS（Sample per second）
发射端动态范围/Transmitter dynamic range	101dB
接收端动态范围/Receiver dynamic range	98dB
电池参数/Battery parameters	750mAh，28*32*9.3mm
充电适配器匹配参数/Charging adapter matches parameters	
输出/Output	DC5V /2A

3. 产品使用/ Product usage

**图 3-1 VDB1610 正面/ Figure 3-1 Front view of the VDB1610**
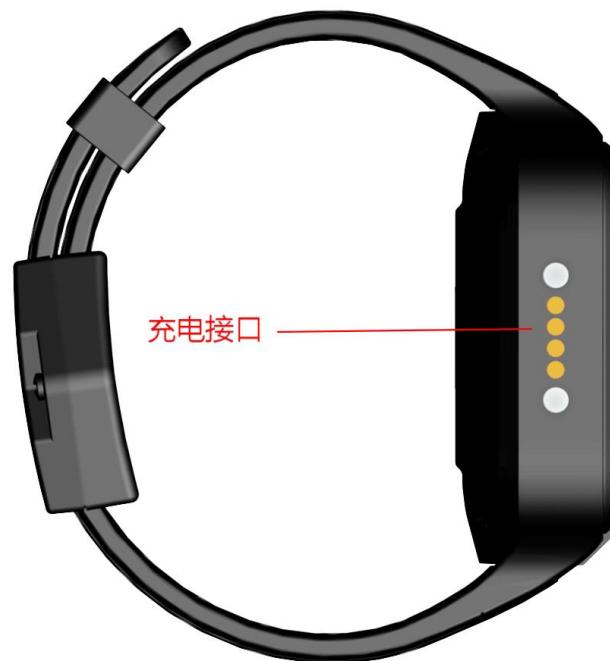
图 3-2 VDB1610 侧面/ Figure 3-2 Sides of the VDB1610

3.1 开机/Power on

长按按键，直到屏幕点亮，松开按键，屏显示电量格数、心率和计步信息，表示开机成功。刚开机会广播 30s 蓝牙 MAC 地址。开机后 10s 左右息屏，短按一下按键点亮屏幕。充电时候手表会处于开机状态。

Long press the button until the screen lights up. The screen display battery count, heart rate and step count information, indicating successful startup. The Bluetooth MAC address will be broadcast for 30 seconds. About 10 seconds after the switch on, pause the screen and light up the screen with a short press. The watch will be on when charging.

3.2 SOS

手表开机成功后，长按 3s 按键就表示一次紧急呼救，手表将 SOS 呼救信息发送到后台。

After the watch is turned on successfully, long press the 3S button to indicate an emergency call, and the watch will send the SOS call information to the background.

3.3 关机/ Power down

开机后，连续按 3 下按键，每次间隔在 1s 左右，最后一下长按，屏幕灭掉表示关机成功。

After the power-on is started, press the button three times, each time interval is about 1s. After the last long press, the screen is off, indicating that the power-off is successful.

3.4 充电/ Charge

将配套的充电线一端插入 5V 直流充电适配器，另外一端通过磁力对准充电接口座吸住。充电时电池电量格数会循环显示，当充满时候电池电量格数不变，表示充满。

Insert one end of the supporting charging line into the 5V DC charging adapter, and the other end is attached to the charging interface seat by magnetic force. When charging, the number of battery cells will be displayed in a cycle. When the battery is full, the number of battery cells remains unchanged, indicating that the battery is full.

3.5 心率检测/ Heart rate detection

开机后，每 10min 会做一次心率检测，每次 20s 左右，并将测试数据传送到后台。

After startup, the heart rate will be detected every 10 minutes, and the test data will be sent to the background about every 20 seconds.

3.6 防拆功能/Tamper device

当表带被拆卸或者剪断时，手表会将拆卸信息发送到后台，提醒监查人员。

When the strap is removed or cut, the watch will send the disassembly information to the background to alert the inspectors.

3.7 屏显示功能/Screen display function

开机后，屏左上角显示 HR，H 表示心率功能，R 表示计步功能；屏右上角显示电量格数。第一界面中间显示测试的心率值，短按一下按键后进入计步功能界面，中间显示当前计步信息。

After startup, "HR" is displayed in the upper left corner of the screen, where "H" stands for heart rate function and "R" stands for step counting function. The number of battery bars is displayed in the upper right corner of the screen. The test heart rate value is displayed in the middle of the first interface, and the step counting function interface is entered after a short press of the button, and the current step counting information is displayed in the middle.

3.8 按键功能简表/Brief list of key functions

表 3-1 按键及显示列表/Table 3-1 Keys and display list

基本功能/ Basic function	按键操作/Keys operation	屏状态/State of the screen	
开机/ Starting up	长按 3s 按键至屏幕亮起/ Long press the 3S button until the screen lights up	屏幕点亮/ Light up the screen	
关机/Power off	三短按一长按按键/Three short presses and one long press	屏显关闭/ Screen is shut down	
息屏/Interest rates screen	无操作 10s 息屏/ No operation for 10 seconds	息屏/ Interest rates screen	
唤醒屏幕/Wake up the screen	开机状态短按一下按键/Short press the button in startup state	亮屏/ Brighten the screen	
SOS	开机状态长按 3s 按键/ Hold down the 3S button while on	振动提示/ Vibrating alert	
计步模式/Meter step model	开机状态短按一下按键/Short press the button in startup state	计步模式，步数显示/Step counting mode, step number display	
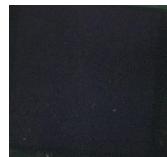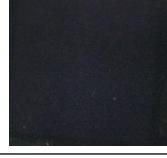
| 心率模式/Heart rate pattern	开机状态短按二下按键/In startup state, press the button twice	进入心率测量模式/Enter heart rate measurement mode	
充电/Charge	无/NO	屏右上角电池电量格数循环/The battery quantity cycles in the upper right corner of the screen	

4. 尺寸参数/Dimension parameter

图 4-1 VDB1610 正面尺寸（±1mm）/ Dimensions of the VDB1610 front (±1mm)

图 4-2 VDB1610 侧面尺寸（±1mm）/ VDB1610 side dimensions (±1mm)

5. 联系方式/Contact information

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